

Chapter 3

Trends Related to the Conversion of Forests to Non-forest Uses



In the state of Washington, many factors contribute to forestland conversion. Research and analysis, conducted in the course of developing this Assessment of Need (AON), point toward development and growth in rural areas as the most imminent threat to working forests in the State of Washington.

To implement the Forest Legacy Program so that it effectively protects environmentally important forest areas from being converted to non-forest uses, it is essential to understand the trends and patterns that are related to forestland conversion. This AON looks at some of these: the rate and location of conversion, population growth, ownership patterns, and economic and regulatory impacts.



Rate and location of conversion

The Natural Resources Conservation Service (NRCS) has reported that “Washington’s forestland is being converted to other uses at a rate that exceeds the rate of conversion in the Pacific Northwest region and the nation as a whole” (Clinton and Lassiter 2002).

Since the 1930s, Washington has lost approximately 2 million acres of private forestland to non-forest uses (Clinton and Lassiter 2002). Between 1982 and 1997, Washington State lost approximately 263,000 acres of forestland to non-forest uses. Washington is losing non-federal forestland at an average rate of 17,500 acres (net loss) per year (ISU 2000).

The pressure of population growth is reflected in the NRCS-National Resource Inventory figures for conversion of non-federal rural resource lands (including forestlands) to urban and rural transportation uses in Washington (Clinton and Lassiter 2002):

- Between 1982 and 1997, an average of about 37,000 acres were converted per year; about 17,500 acres of these were converted from forestland.

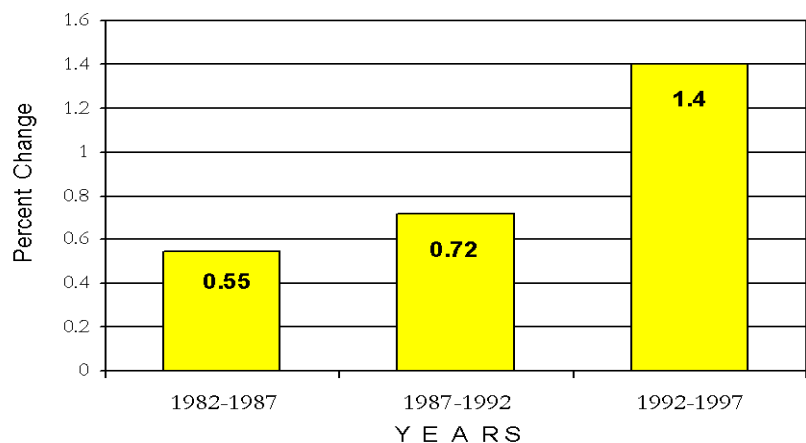
- Between 1992 and 1997, an average of about 44,000 acres were converted per year; 21,000 acres of these were converted from forestland.
- Since 1997 the conversion of forestland to urban, rural and transportation uses has begun to outpace that of the conversion of agricultural lands.



It is not surprising that much of the conversion of forestlands is taking place in western Washington along the I-5 and I-90 corridors near the larger metropolitan areas. These areas continue to expand. Unfortunately, these areas also are highly suitable for forestry because they contain some of the nation's most productive forest soils—capable of producing 120 cubic feet per year—on gentle slopes in close proximity to existing infrastructure. The USDA Forest Service reports that in the I-5 corridor between Olympia and the Canadian border (King, Kitsap, Pierce, San Juan, Skagit, Snohomish, Thurston and Whatcom counties), it is estimated that 159,000 acres of private timberlands were converted between 1979 and 1989, or about 15,000 acres annually (MacLean and Bolsinger 1997).

Forest conversion is happening throughout most of the state, not just in the Puget Sound region (which was the focus of the 1993 Washington Forest Legacy Area). For example, Clark County, in the southwestern portion of the state, has become a bedroom community to Portland, Oregon, which lies just across the Columbian River. Clark County has the third highest population density in Washington and has lost more than 15,100 acres of forestland to development between 1982 and 1997. Also, in eastern Washington, Spokane County ranks in the state's top ten counties for forestlands being converted to non-forest uses. This is consistent with Spokane County being the eighth most densely populated county in the state and with the City of Spokane being the major metropolitan area in eastern Washington.

Fig. 3.1 Estimated Rate of Conversion of Nonfederal Forestland in Washington State



Data Source: 1997 National Resource Inventory

Growth Management



Washington's Growth Management Act (GMA) was intended to prevent uncoordinated sprawl across the state's landscape. By focusing growth in designated urban growth areas, public services and utilities could be delivered more efficiently, landscape character could be deliberately maintained or developed, conflicts in development could be reduced, and needed natural resources could be assured for the long term. However, forestland conversion still occurs in areas zoned under Growth Management laws, both in the areas zoned to promote development and residential use, and in areas zoned to protect long-term forest uses.

Counties allow development on forestlands in different densities. The higher densities are usually located near the interface with areas designated as Rural Residential. Densities typically range from 1 home per 10 acres (and less) to 1 home per 80 acres.

County planners for King and Pierce counties (two of the counties in the 1993 Forest Legacy Area) have indicated that 40 acres is the smallest parcel size that can sustain working forests. Properties zoned for long-term forestry near Rural Residential areas and high growth areas are under pressure of development. It isn't uncommon to see 40-acre or larger parcels zoned for long-term forestry purchased for single family residential use; these lands are less likely to support working forestry. As more properties zoned for long-term forest use are purchased to support residential use, counties are put under more pressure to allow increased densities for residential use.

To combat this trend, King County has proposed rules that greatly restrict residential use on lands zoned for long-term forestry, but the public has been slow to support them without a strategy for long-term acquisition or compensation.

Growth management zoning designations effectively only slow development into areas zoned for long-term forestry, they don't provide protection for it. The Growth Management Act has not protected working forest lands from the effects of urban (rural) sprawl. County planners agree that segregation into smaller parcels impacts the transition of the forest zone. Without stronger regulations of development on lands zoned for long-term forestry, the most productive low elevation forest ecosystems in the state are likely to continue to become residential neighborhoods.

Even forestlands in less populated counties are being threatened. For example, Kittitas County is located due east of King County, and is beginning to feel the crunch of rapid expansion. The commuting distance to a Seattle-area job from as far as Kittitas County now seems acceptable, with good Interstate highway access (average commute of

just over 1 hour). The exact number of individuals who commute daily to jobs in King County is not known. However, according to local residents and county planners, that number has been steadily increasing over the last 10 years.

Kittitas county is typical of those counties located on the eastern slopes of the Cascade Range, where the western part of the county is dominated by large stands of privately owned forest lands, while the eastern portion is considered to be agricultural. Large private industrial forestland owners in the western portion of the county have begun selling large tracts of forestlands to developers. One such development adjacent to the city of Cle Elum (population 1,755) is a reported 8,000 acres and when fully developed will contribute a planned 4,400 new living units to the area. Another 10,000 acres of forestland was recently optioned to a private developer in the same vicinity.



Effects of Forest Conversion

The effects of forest conversion in Washington's low elevation ecosystems make all forestlands in the transition zone environmentally important and a priority for protection.

Conversion of forest watersheds to other land uses can significantly alter the timing, quantity, and quality of water as well as riparian and in-stream habitat. Land uses that create impermeable surfaces can accelerate water transport to stream channels, causing increases in peak flows. Removal of forest vegetation can shorten spring snowmelt periods and increase the volume of water delivered to streams during rain-on-snow events. The quantity of excess water is generally increased when forest vegetation is removed. However, the amount for aquifer recharge may be reduced when impermeable surfaces direct water to streams rather than allowing it to percolate downward. Land uses that cause overland flow will tend to increase the chance of sedimentation by sheet and rill erosion. The removal of forest on unstable slopes may increase the frequency and severity of mass wasting. Conversion of forest riparian areas to other uses can increase water temperatures and reduce channel stability causing damage to aquatic habitat.

For watersheds that are not set aside solely for the purpose of producing a water supply or are not protected by county critical areas ordinances, maintaining land use under sound forest management is an effective way to protect the water resource. Combined county, state, local and private conservation efforts normally require coordination to protect forest lands at a watershed scale.

Population growth

Population growth, with the development it brings, creates pressure to convert forestlands to non-forest uses, and the size and rate of population growth in Washington State is noteworthy.

Washington's population rose by 21 percent between 1990 and 2000. (OFM 9/2002) This ranked the state as the tenth-fastest growing state in the U.S., with a growth rate much higher than the national average of 13.2 percent. The population increase also meant the state ranked seventh in overall population change and made Washington State the fifteenth most populated state in the nation (USCB).

Seventy-two percent of that growth took place in counties located west of the Cascade Range, specifically King, Pierce, Snohomish, and Clark counties (OFM 9/2002) .

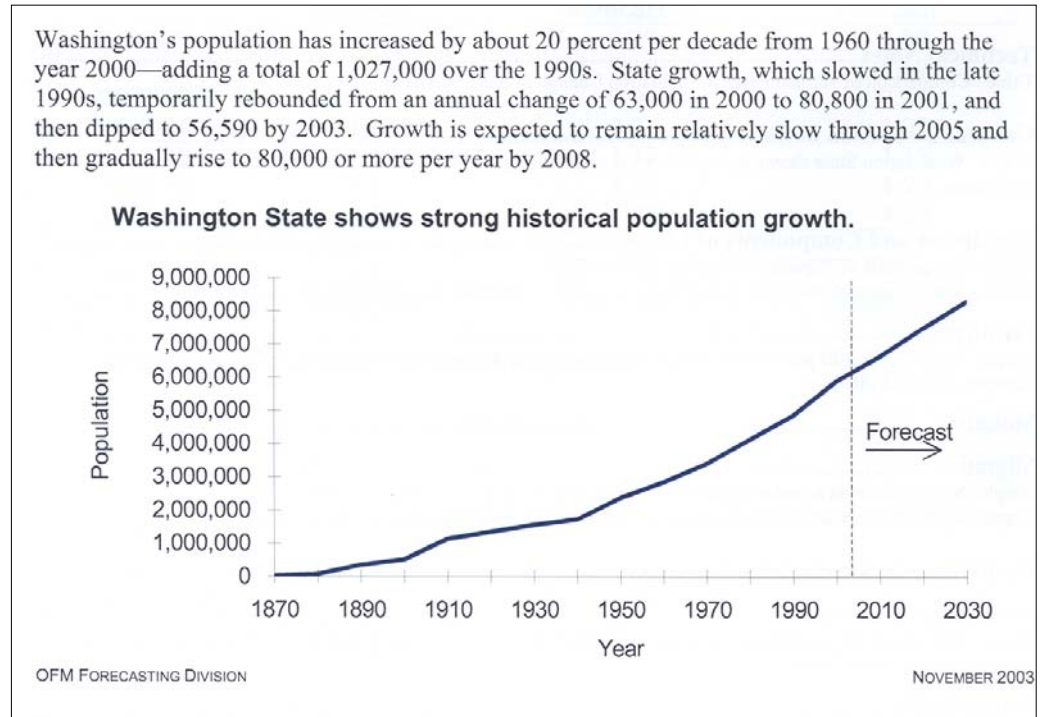
According to the National Census Bureau, Washington's population was about 5.9 million in 2000 (USCB). By the year 2025, the total state population is expected to be more than 7.8 million, and by 2045, approximately 11 million, according to the Washington State Office on Financial Management (OFM). The Washington State population grew by more than 1 million persons during the 1990s. The majority of growth is expected to continue to take place west of the Cascade Range, while eastern Washington counties that currently have a total population greater than 50,000 are each expected to have a 50 percent increase to their populations in the same period (OFM 1/2002).

As the following graph (fig. 3.2) shows, the past decade's growth and the growth forecast for the future are a continuation of strong historical trend of population growth:

- Washington's population more than doubled between 1960 and 2002. Over that period, approximately 50 to 75 percent of the population change was due to net migration (in-migrants minus out-migrants) and the remainder was due to natural increase (births minus deaths).
- Migration into and out of state in the 1980s responded to the severe economic recession of the early 1980s and the aerospace expansion of the late 1980s.
- The prolonged California recession, which resulted in out-migration of about 400,000 Californians per year in the early 1990s, contributed to Washington's high net migration figures. Even though economic growth in Washington was slow in the early 1990s, it still outperformed California.

- Non-economic factors, including movement of retirees to Washington, also contributed to strong population growth in the 1990s.

Fig. 3.2 – Washington State Population – 1870 to 2030

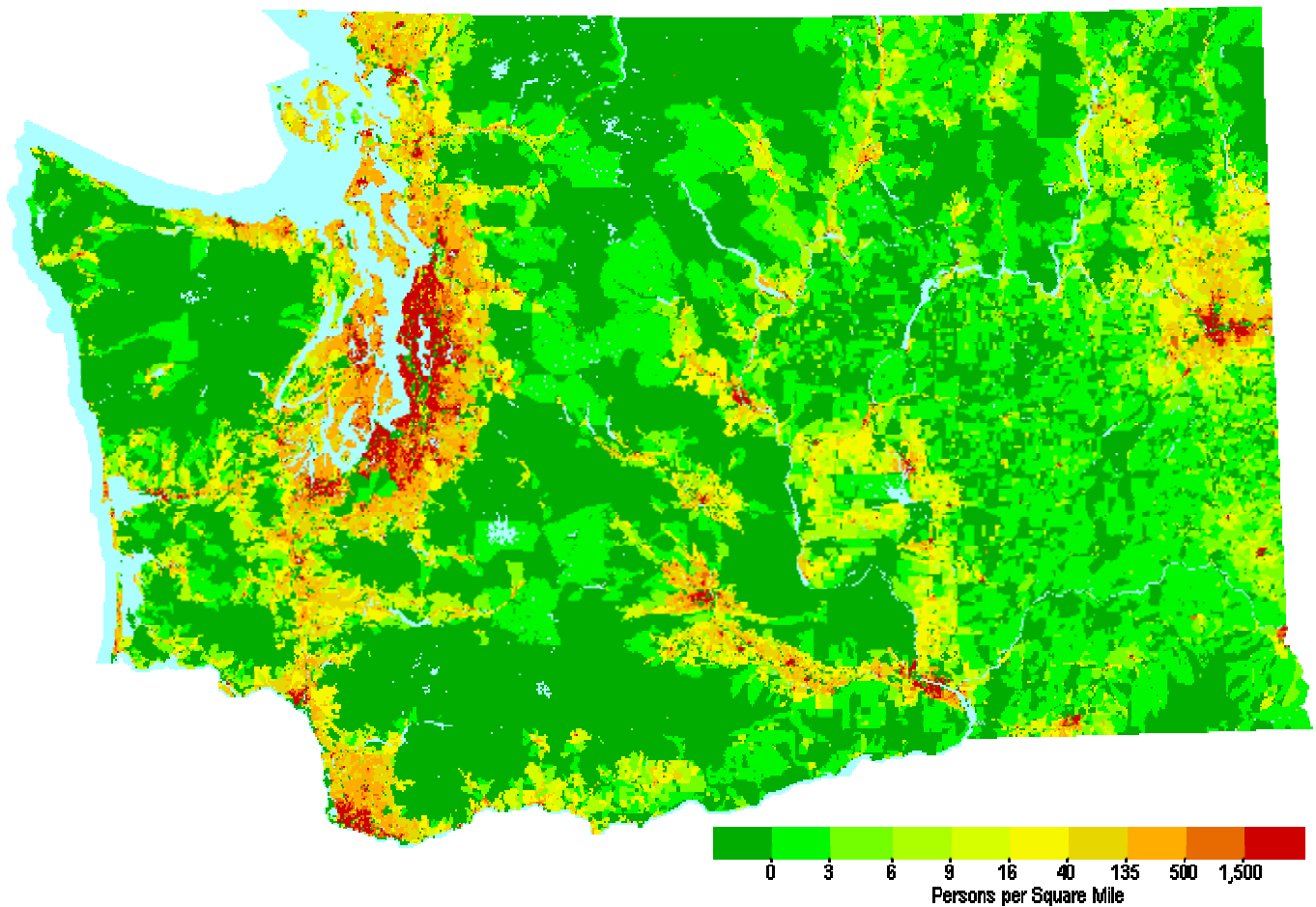


The growth rate for the state as a whole is expected to slow but remain higher than the national average. This slow down will be due in part to a change in the age of the state's population. In 2000, 11.2 percent of the state's population was over the age of 65. By 2025, 18.1 percent of the state's population is projected to be age 65 or older. As the population becomes older, the percentage of current population participating in the work force is expected to decline. This is predicted to result in a net immigration as the current work force needs to be replaced (OFM 1/2002).

As the state's population continues to grow, there is pressure to convert forestlands to non-forest uses. Population density information can be used as an indicator to identify where development pressure is likely in the landscape, and as a result, where forestland is at higher risk of conversion as development spreads out from the more densely populated areas.

Fig. 3.3 – Population Density 2000

Source: Washington Office of Financial Management



Forestland ownership

Of the 42.6 million acres that make up the state of Washington, 21.9 million acres are considered forested. Of these forested acres, 39 percent (or 8.5 million acres) are privately owned. The remaining 61 percent of forestlands in Washington State are owned by government agencies (WFPA 2002). The vast majority of private lands in Washington (forested and non-forested) are below the 3,000-foot elevation level (IAC 2001).

Many of the forestlands lost to development are from small forest landowners. These properties are usually smaller areas of forestland in lower elevations located closer to existing development that is taking place in what is commonly referred to as the Rural Residential Zone, and they are usually on milder slopes having well-drained soils, making them more desirable for building sites. Although these forestlands are very threatened by conversion, opportunity for protection of meaningful

landscapes that conserve water quality, habitat and timber management opportunities is reduced in the Rural Residential Zone.

Many large industrial forestland owners also are selling their forestland investments. Some parcels may be sold to small forest landowners, others are sold off for development, making them unsuitable for forestry. Current zoning laws have not had a significant impact on slowing this trend.

Fig. 3.4 Forestland Ownership in Washington

Total Government-Owned Forestland		61%	13,350,000 acres
State Trust Land		10.4%	2,270,000 acres
County and City		1.2%	270,000 acres
Tribal		5.8%	1,269,000 acres
Federal		43.6%	9,541,000 acres
■	National Parks		1,451,000 acres
■	U.S. Forest Service		8,037,000 acres
■	Wildlife Refuges		3,000 acres
■	Bureau of Land Management		50,000 acres
Total Privately Owned Forestland		39%	8,542,000 acres
Industrial Private Landowners		19.7%	4,305,000 acres
Non-industrial Private Landowners		19.3%	4,237,000 acres

Data Source: Washington Forest Protection Association 2002

Economic and regulatory impacts

Economic and regulatory impacts can provide pressure for landowners to convert their forestlands. In some cases, these are linked together.

Washington State regulates forest practices, and regulations result in higher compliance cost to all forestland owners, whether large or small. *Compliance cost* is defined as the loss of current revenue and assets in addition to higher operating cost. In Western Washington much of the compliance cost is associated with protection of the riparian management zone, and in Eastern Washington the brunt of this cost come from road maintenance and stream crossings. These regulations are associated with protecting several species of fish and wildlife that have been listed under the federal Endangered Species Act.

The impact of compliance costs is clearly an issue in Washington State. As originally written, recent requirements for road maintenance and abandonment plans and correction of fish passage barriers created unintended financial burdens for small forest landowners. There was a clear risk that small landowners would not be able to afford to keep their lands in forestry. If they instead opted to convert their forestland to other uses, the habitat the rules were meant to protect would be lost. The outcry about this regulatory/economic pressure was great enough to prompt a revision of the rules and the creation of a financial assistance program to help small forest landowners correct fish passage barriers.

Exports of Washington timber products have been on the decline since the early 1990s, in part due to increased international competition and the recent Asia economic climate. Timber exports have declined 26 percent since 1999 alone. Forest products used to be the second highest export in the state, as measured in dollars, after exports from the aircraft industry. According to the Washington State Department of Community, Trade and Economic Development, wood and articles of wood have dropped to the seventh highest export commodity in 2001, with Japan being the major trading partner for wood products (CTED).

The shift in exports is also reflected in the makeup of Washington's work force. In the past two decades timber-related employment has been on the decline--in part due to advances in technologies and in part due to market conditions and decreased demand. During this same period, overall unemployment rates have been lower, which indicates individuals are seeking new employment in other industries.

Timber-dependent communities and mills have been hard hit by reduced timber harvest on federal, state, and private lands. Timber-dependent communities and struggling mills reside in both high population density areas and in more isolated communities around the state.

Increased costs, timber supply, poor timber market conditions in Asia, falling timber prices, lower-cost wood from abroad, and high demand for urban/rural development resulting from population increase all provided economic incentives for landowners to convert their forestlands to non-forested uses.

This page blank.